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☒ 1. Document ID: US 6077193 A

L4: Entry 1 of 3

File: USPT

Jun 20, 2000

US-PAT-NO: 6077193

DOCUMENT-IDENTIFIER: US 6077193 A

**\*\* See image for Certificate of Correction \*\***

TITLE: Tracking system for promoting health fitness

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KMC	Draw D
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☒ 2. Document ID: US 5816599 A

L4: Entry 2 of 3

File: USPT

Oct 6, 1998

US-PAT-NO: 5816599

DOCUMENT-IDENTIFIER: US 5816599 A

TITLE: Bicycle torque detection apparatus and bicycle including the same

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KMC	Draw D
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☒ 3. Document ID: US 5629668 A

L4: Entry 3 of 3

File: USPT

May 13, 1997

US-PAT-NO: 5629668

DOCUMENT-IDENTIFIER: US 5629668 A

TITLE: Data display unit for a bicycle

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KMC	Draw D
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L4: Entry 3 of 3

File: USPT

May 13, 1997

US-PAT-NO: 5629668

DOCUMENT-IDENTIFIER: US 5629668 A

TITLE: Data display unit for a bicycle

DATE-ISSUED: May 13, 1997

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Downs; Robert M.	Madison	WI		

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Trek Bicycle, Corp.	Waterloo	WI			02

APPL-NO: 08/ 288399 [PALM]

DATE FILED: August 10, 1994

INT-CL: [06] B62 J 2/00

US-CL-ISSUED: 340/432; 340/627, 462/57

US-CL-CURRENT: 340/432; 340/427, 482/57

FIELD-OF-SEARCH: 340/432, 340/427, 340/438, 324/174, 482/51, 482/57, 482/902, 364/551.01, 364/557, 364/561

PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

Search Selected

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	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	<u>4633216</u>	December 1986	Tsuyama	340/140
<input type="checkbox"/>	<u>4636769</u>	January 1987	Tsuyama	340/134
<input type="checkbox"/>	<u>4862395</u>	August 1989	Fey et al.	364/561
<input type="checkbox"/>	<u>4881187</u>	November 1989	Read	364/565
<input type="checkbox"/>	<u>5416728</u>	May 1995	Rudzewicz et al.	364/557

ART-UNIT: 267

PRIMARY-EXAMINER: Hofsass; Jeffery

ASSISTANT-EXAMINER: Lieu; Julie B.

ATTY-AGENT-FIRM: Lee, Mann, Smith, McWilliams, Sweeney & Ohlson

ABSTRACT:

A data display unit for a bicycle includes a means for determining and displaying an operational data signal in a normal operating mode and a workout data signal of a workout window mode having predetermined data information including time, distance, average and maximum speed. The unit is configured to calculate and display the predetermined information of the operational data signal information and to allow for the manual actuation to begin separate calculation, display and resetting of the predetermined information of the workout data signal. The display includes a liquid crystal display for displaying separately operational data signals and workout data signals.

26 Claims, 10 Drawing figures

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L4: Entry 3 of 3

File: USPT

May 13, 1997

DOCUMENT-IDENTIFIER: US 5629668 A

TITLE: Data display unit for a bicycle

Abstract Text (1):

A data display unit for a bicycle includes a means for determining and displaying an operational data signal in a normal operating mode and a workout data signal of a workout window mode having predetermined data information including time, distance, average and maximum speed. The unit is configured to calculate and display the predetermined information of the operational data signal information and to allow for the manual actuation to begin separate calculation, display and resetting of the predetermined information of the workout data signal. The display includes a liquid crystal display for displaying separately operational data signals and workout data signals.

Application Filing Date (1):

19940810

Detailed Description Text (16):

Referring to FIGS. 3a-3d, the workout window mode of the present invention is described. The workout window mode includes screens 42, 44, 46 and 48, for allowing the cyclist to accumulate a second separate set of data for a workout timer 68, a workout distance 70, a workout average speed 72 and a workout maximum speed 74. In this manner, workout data signals can be computed by the computer 14 and displayed by display 30 to advantageously provide a measurement of true performance during the cyclist's workout portion. The workout window mode is operated manually so that the user can choose when to start and to stop the accumulation of the second set of data. The workout data can be cleared at any time without affecting the cumulative operating data from being computed and recorded in the normal operating mode of unit 10. The workout window mode is accessed by holding the mode button 22 until the "WW" symbol 66 is displayed in the upper portion of display 30. Additionally, the middle portion of display 30 is "windowed" utilizing the symbols 80 conventionally represented by corner brackets. The unit 10 can be configured to toggle between the normal operating mode and the workout window mode during the workout or when calculating and recording workout data by depressing the mode button 22 until the display 30 reverts back to the normal operating mode. Thus, the unit 10 of the invention can advantageously compute and display operational data signals and separately compute and display workout data signals to provide an accurate measure of the true performance of a cyclist's workout.

Detailed Description Text (17):

Referring to FIG. 3a, the workout timer screen 42 of display 30 displays a workout timer 68 as the first screen when the workout window mode is accessed. The workout timer 68 is configured to compute and record a period of time or "workout" that is manually actuated by the cyclist. Other predetermined information of the average and maximum speeds, and the distance are determined using the workout time, thereby generating speeds and distances for the workout. The control 28 is responsive to the mode button 22 so as to control the microprocessor 24 thereby starting and

stopping the accumulation and recording of the second set of data, i.e. the workout data signal. The workout data signals are supplied from the microprocessor 24 to the control device 28 and are displayed on display 30 in screen 42-48. As above, the workout timer 68 is manually operated and can be configured to start and stop only while in the workout window mode. The unit 10 is adapted to compute the second set of data for the workout window mode when the workout timer 68 is engaged. To start the timer 68, the set button 20 is depressed and the unit 10 can be configured to flash the WW symbol 66 on and off to indicate that the timer 68 is running. When the timer 68 is engaged, a workout data signal having data information of the workout timer 68, workout distance 70, workout average speed 72 and workout maximum speed 74 is computed and recorded. By depressing and holding the mode button 22, the control unit 28 reverts to display operational data in the normal operating mode having the WW symbol 66 illuminated. The WW symbol 66 alerts the cyclist that the timer 68 is on. The unit 10 is adapted to display the bracketed portions 80 only when in any of the screens 42-48 of the workout window mode. Using the mode button 22 again can return the cyclist to the workout window mode. In order to stop the timer 68, the user depresses the set button 20, whereby the "WW" symbol 66 will stop flashing and the microprocessor 24 will stop computing the second set of data information, i.e. the workout data signal. By depressing the mode button 22 for a short duration, the unit 10 is configured to switch from screen 42 to screen 44 to display the data of the workout distance 70 indicated by the "DST" symbol. Similarly, depression of the mode button 22 twice displays screen 46 displaying the workout average speed 72 indicated by the "AV" symbol. Additionally, depressing the mode button 22 a third time displays screen 48 having the workout data for the workout maximum speed 74 indicated by the "MX" symbol. In this manner, depressing the mode button 22, a user can cursor through the screens 42-48 and view the workout data for the workout timer 68, workout distance 70, workout average speed 72 and workout maximum speed 74. The workout data signal is displayed and is advantageously indicated by the WW symbol 66, which can advantageously be configured to blink or flash on and off when in the workout window mode so as to indicate that the sensor 12 is sending the pulse signal to the computer 14. The cyclist can view any of the workout data whether the timer 68 is on or off. Throughout the operation of the workout window mode, the upper portion of display 30 continues to display the current speed 54, wheel setting 76 or 78 and the lower portion continues to display the clock 62 and temperature 64. Finally, the workout window mode can reset the second set of data to zero (0) by depressing and holding buttons 20 and 22 until the display resets to zero (0), for example, for about one (1) second. Resetting the workout window mode data does not affect the calculation of operational data being generated for the normal operating mode.

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